CLAIMS

1. A device for producing a fluid containing a radioactive constituent, the device comprising

a shielded chamber with an opening for receiving an isotope container housing a radioactive isotope;

a chamber closure adapted for cooperating with and closing the chamber opening;

a first fluid port comprising a first hollow needle projecting into the shielded chamber from the chamber closure for fluid communication with the isotope container;

a second fluid port comprising a second hollow needle projecting into the shielded chamber from the closed end of the chamber opposite the chamber closure for fluid communication with the isotope container;

first and second compressible buffers mounted so as to surround at least partially the respective first and second hollow needles, each buffer providing an outer surface for contact with opposed ends of the isotope container; and

a spacer of a predetermined thickness associated with one or each of the first and second compressible buffers for determining the positioning of the isotope container within the shielded chamber.

2. A device as claimed in claim 1, wherein with the chamber closure in

place in the chamber opening, the first and second hollow needles are fixed in position at each end of the shielded chamber.

3. A device as claimed in any one of the preceding claims, wherein the spacer is provided with the second compressible buffer at the closed end of the shielded chamber.

4. A device as claimed in any one of the preceding claims, wherein the material of the first and second compressible buffers is a semi-open cell foam.

5. A device as claimed in any one of the preceding claims, wherein the material of the spacer is a closed cell foam.

6. A device as claimed in any one of the preceding claims wherein the device is a radioisotope generator.

7. A device as claimed in any one of the preceding claims, wherein opposing ends of the isotope container each includes a frangible seal adapted to be pierced by and to seal around the respective first and second hollow needles.

8. A device as claimed in any one of the preceding claims, wherein the

isotope container is an ion exchange column.

9. A device as claimed in any one of the preceding claims, wherein the first and second hollow needles are each connected via associated fluid conduits with a fluid inlet and a fluid outlet respectively.

10. A device as claimed in claim 9, wherein the fluid inlet and the fluid outlet each consists of hollow spikes.

11. A device as claimed in either of claims 9 or 10, wherein the device further includes an outer housing within which the shielded chamber is located wherein the fluid inlet and the fluid outlet are mounted in the outer housing to provide fluid connections external to the outer housing.

12. A device as claimed in claim 11, wherein the fluid conduits each consist of flexible tubing which is greater in length than the distance between the hollow needles and their respective fluid inlet or outlet.

13. A device as claimed in claim 12, wherein the flexible tubing of each fluid conduit is in length at least twice the distance between the hollow needles and their respective fluid inlet or outlet.

14. A method of constructing a radioisotope generator comprising the

steps of:

providing a shielded chamber with an opening and a chamber closure adapted for cooperating with and closing the chamber opening;

providing a first fluid port comprising a first hollow needle projecting into the shielded chamber from the chamber closure;

providing a second fluid port comprising a second hollow needle projecting into the shielded chamber at the end of the chamber opposite the opening;

mounting first and second compressible buffers so as to surround at least partially the respective first and second hollow needles, one or each of the compressible buffers including a spacer of predetermined thickness;

thereafter introducing an isotope container housing a radioactive isotope through the chamber opening into the shielded chamber so as to contact with the second hollow needle and the second compressible buffer at the closed end of the chamber; and

closing the shielded chamber by positioning the chamber closure in the opening and bringing the first hollow needle and the first compressible buffer into contact with the isotope container whereby the spacer determines the positioning of the isotope container within the shielded container.

15. A method as claimed in claim 14, further comprising the step of, prior to introduction of the isotope container into the shielded chamber,

connecting the first hollow needle to a first fluid conduit and connecting the second hollow needle to a second fluid conduit.

16. A method as claimed in claim 15, further comprising the step of, prior to introduction of the isotope container into the shielded container, locating the shielded container within an outer housing and connecting the first fluid conduit to a fluid inlet in the outer housing and the second fluid conduit to a fluid outlet in the outer housing.

17. A method as claimed in claim 16, wherein the first and second fluid conduits are each of flexible tubing which is greater in length than the distance between the first and second hollow needles and their respective fluid inlet and fluid outlet when the chamber closure is in place in the chamber opening and the shielded chamber is positioned within the outer housing whereby all fluid connections can be established prior to installation of the isotope container within the shielded chamber.